Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES
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Ex parte BRUCE D. LUCAS,
JAMES R. RHYNE II,
and CATHERINE G. WOLF
_____

Appeal No. 1997-2896
Application 08/340,561
_____

ON BRIEF
_____

Before HAIRSTON, FLEMING, and RUGGIERO, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of

claims 1, 2, 4 through 18. Claim 3 has been canceled.

The invention relates to pen based computer systems.

Specifically, as identified on page 7 of Appellants'

specification, the invention is a method of tracking the path

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of the pen and producing an anti-aliased image of the pen's

path on the display of the computer. On page 8 of Appellants'

specification, the system for implementing the method is

described as comprising a digitizer, a frame buffer and a

processor all connected to a bus. There is a display and a

tablet which overlays the display. The digitizer is connected

to the tablet and measures the position of the pen (stylus) on

the tablet, and the frame buffer drives the display. The

processor receives the measurements from the digitizer and

provides display data to the frame buffer. The frame buffer

then drives the display to draw lines or curves at positions

corresponding to the pen's path. The method of producing the

anti-aliasing images is described starting on page 9 of

Appellants' specification. The method involves decomposing

the pen's stroke into line segments. The pen stroke is then

drawn as distinct line segments. The end points of each

adjacent line segment are overlapped, thus ensuring that there

is a one pixel overlap between line segments. This

overlapping overcomes gaping between line segments. Further,

Appellants describe on pages 2 through 4 and 10 through 12 of

the specification, that a technique is used to adjust the

color of the pixels used to draw the lines. Alternatively,

Appellants describe on pages 15 and 16 of the specification,

that a technique is used to adjust the brightness of the

pixels used to draw the line. This adjustment is made in

proportion to the amount of the pixel covered by the line.

The end result is that the pixels partly within the drawn line

will be blended with the background.

Independent claim 2 is representative of the invention.

2. A method for producing an anti-aliased image on the
display of a pen computer, comprising:

(a) moving a stylus along a desired path on the surface
of a digitizing tablet, the digitizing tablet having a
plurality of locations corresponding to pixel locations on an
attached display;

(b) producing in response to step (a) an electrical
signal indicative of the location of the stylus at a given
time;

(c) generating on the display an anti-aliased visual
display of the path, the visual display comprising a plurality
of pixels, comprising the steps:

displaying as line segments each group of
proximately disposed pixels corresponding to locations
traversed by the stylus, a plurality of the line segments
constituting a representation of the path of the stylus;

displaying each of the line segments on the display
such that the ends of adjacent line segments overlap.

The Examiner relies upon the following references:

Easterbrook   4,931,784   Jun. 5, 1990
Stockholm   5,293,579   Mar. 8,
1994
Memarzadeh   5,283,557   Feb. 1, 1994
Alcorn et al. (Alcorn) 5,301,269   Apr. 5, 1994
Zimmer   5,347,620   Sep. 13, 1994

Claims 1, 2 and 18 stand rejected under 35 U.S.C. § 102

as being unpatentable over Memarzadeh. Claims 4 through 10

stand rejected under 35 U.S.C. § 103 as being unpatentable

over Memarzadeh, Zimmer, Alcorn, and Stockholm. Claims 11

through 17 stand rejected under 35 U.S.C. § 103 as being

unpatentable over Memarzadeh, Zimmer, Alcorn, Stockholm, and

Easterbrook.

OPINION

Rather then reiterate the arguments of Appellants and the
Examiner, reference is made to the briefs[1] and answers[2] for the
respective details thereof.

We will not sustain the rejection of claims 1, 2 and 4
through 18.

Appellants assert, on pages 4 and 5 of the November 27,
1996 brief (brief), that **In re Donaldson**, 16 F.3d 1189, 29
USPQ2d 1845 (Fed. Cir. 1994) should be applied in interpreting
claim 1. Appellants note that claim 1 recites "means
responsive to movement of the stylus across the digitizing
tablet for producing an anti-aliased ink image of the path of
the stylus on the display." Appellants assert that this
limitation is in means- plus-function language under 35 U.S.C.
§ 112, sixth paragraph, and as such, it should be interpreted
to include the structure disclosed in the specification to
perform the claimed function. On page 5 of the brief,

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[1]Appellants filed an Appeal brief on November 27, 1996.
Appellants filed a reply brief on April 14, 1997.

[2] The Examiner mailed an examiner's answer on February 13,
1997. On May 29, 1997 the Examiner mailed a supplemental
examiner's answer stating that the reply brief has been
entered and considered.

Appellants assert that in the specification on page 10, lines
5 through 7, the means for providing the anti-aliased image
correspond to the structure for "ensuring that a one pixel
region of overlap exist[s] between successive line segments."
Finally, Appellants assert that Memarzadeh does not disclose
that successive line segments overlap.

The Examiner asserts on page 9 of the February 13, 1997
Examiner's answer (answer) that the proper interpretation of
the limitation "means responsive to movement of the stylus
across the digitizing tablet for producing an anti-aliased ink
image of the path of the stylus on the display" is that the
"means" includes a digitizer, pen tablet and anti-aliasing as
disclosed in Appellants' specification on page 8. In reliance
on this interpretation, the Examiner asserts that Memarzadeh
in column 4, teaches all of the limitations.

First, we must determine the scope of the claim. 35
U.S.C.
§ 112, sixth paragraph, is presumed to apply to a claim
element when the word "means" and an associated function are
present in the claim. ***Micro Chemical Inc. V. Great Plains***

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Chemical Co. 194 F.3d 1250, 1257, 52 USPQ 1258, 1263 (Fed.

Cir. 1999)(*citing Al-Site Corp v. VSI Int'l, Inc.*, 174 F.2d

1314, 1318, 50 USPQ2d 1161, 1166 (Fed. Cir. 1999)). When

interpreting such claims the PTO "must look to the

specification and interpret that language in light of the

corresponding structure, material, or acts described therein,

and equivalents thereof." *In re Donaldson*,

16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994). "A

structure disclosed in the specification is only deemed to be

'corresponding structure' if the specification clearly links

or associates that structure to the function recited in the

claim." *Kahn v. General Motors Corp.*, 135 F.3d 1472, 1476, 45

USPQ2d 1608, 1611 (Fed. Cir. 1998)(*citing B. Braun Med., Inc

v. Abbott Lab*., 124 F.3d 1419, 1424, 43 USPQ2d 1896, 1900

(Fed. Cir. 1997)). "Section 112, Para. 6 requires both

identification of the claimed function and identification of

the structure in the written description necessary to perform

that function." *Micro Chemical Inc. V. Great Plains Chemical*

Co. 194 F.3d at 1258, 52 USPQ at 1263 (Fed. Cir. 1999). "In a

means-plus-function claim in which the disclosed structure is

a computer, or microprocessor, programmed to carry out an

algorithm, the disclosed structure is not the general purpose

computer, but rather the special purpose computer programmed

to perform the disclosed algorithm." **WMS Gaming Inc. V.**

International Game Technology 184 F.3d 1339, 1349, 51 USPQ2d

1385, 1391 (Fed. Cir. 1999)(**citing In re Alappat** 33 F.3d 1526,

1545, 31 USPQ2d 1545, 1558 (Fed. Cir. 1994) (**en banc**).

We next look to the language of the claim. Claim 1

contains the limitation "means responsive to movement of the

stylus across the digitizing tablet for producing an anti-

aliased ink image of the path of the stylus on the display."

We find that the aforementioned limitation invokes 35 U.S.C. §

112, sixth paragraph, as it recites the word "means" and has a

function associated with the means. We find that Appellants'

specification on page 8, line 21 through line 25, defines the

structure which corresponds to the means. This section of the

specification states "the position of the pen is measured and

transmitted to the processor by the digitizer via the bus, and

the processor in turn provides visual feedback to the user by

drawing a line or curve in the frame buffer (and therefore on

the display) at the positions corresponding to the path of the pen." We agree that this structure encompasses a microprocessor. However, we cannot stop here. We must consider the algorithm performed by the microprocessor as a structural limitation as well. As stated by our reviewing court, "[t]he structure of a microprocessor programmed to carry out an algorithm is limited by the disclosed algorithm." ***WMS Gaming Inc. V. International Game Technology***, 184 F.3d at 1348, 51 USPQ2d at 1391 (Fed. Cir. 1999). Accordingly, we concur with the Appellants' assertion on page 4 of the brief, that the scope of claim 1 includes as structure, the algorithm disclosed in the specification to produce the anti-aliased ink image.

Specifically, we find that the scope of claim 1 includes the structure of a microprocessor that breaks down sensed pen strokes into a series of line segments to be displayed, wherein each line segment is displayed with pixels that overlap an adjacent line segment. See Appellants' specification page 9, lines 11 through 15. Further, we find that claimed structure includes the microprocessor being

specifically programmed to either color the individual pixels
displayed or adjust the brightness of the individual pixels
displayed, in proportion to the amount of the pixel covered by
the inked line. See Appellants' specification page 10, line
27 through page 11, line 14 (for color) and page 15, lines 5
through 15 (for brightness). In summary, we find that the
scope of the "means" in claim 1 is such that it includes the
structure of a microprocessor programmed to perform the
specific anti-aliasing algorithms disclosed in the Appellants'
specification.

    We note that independent claim 18 contains limitations
which have similar scope to those limitations of claim 1
addressed above. Specifically, claim 18 includes "means for
producing in response to stylus movements across the surface
of the digitizing tablet an electrical signal indicative of
the location of the stylus at a given time" and "means for
generating on the display an anti-aliased visual display of
the path." Accordingly, we find that the scope of claim 18
includes the structure of a microprocessor programmed to
perform the specific anti-aliasing algorithms disclosed in
Appellants' specification.

Having determined the scope of the claims 1 and 18, we
next turn to the rejection of these claims under 35 U.S.C. §
102 as being unpatentable over Memarzadeh. Anticipation is
established only when a single prior art reference discloses,
expressly or under the principles of inherency, each and every
element of a claimed invention as well as disclosing structure
which is capable of performing the recited functional
limitations. *RCA Corp. v. Applied Digital Data Sys. Inc*., 730
F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984), *cert.
dismissed*, 468 U.S. 1228 (1984); *W. L. Gore & Assocs., Inc. v.
Garlock Inc*., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed.
Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

We find that the Examiner has failed to show that each
limitation of claim 1 is anticipated by the prior art. We
find that Memarzadeh teaches determining data points related
to the path of the stylus, these points are then interpreted
as line segments, column 4, lines 17 through 20. The pixels
have designated active and passive areas. These areas and the
interpreted line segments are then used to determine which
pixels are activated to display the path of the stylus, column

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4, lines 48 through 51. We find that Memarzadeh fails to

teach drawing line segments and overlapping the ends of each

adjacent line segment as is claimed. Thus, we will not

sustain the rejection of claims 1 and 18 under 35 U.S.C. §

102.

We next turn to the rejection of claim 2 under 35 U.S.C.
§ 102 as being unpatentable over Memarzadeh. On page 8 of the
brief, Appellants reiterate the arguments that Memarzadeh does
not teach displaying each line segment such that adjacent
lines overlap by one pixel. On pages 5 and 6 of the brief,
Appellants provide a marked up copy of Memarzadeh's figure 3C.
Through this figure and the accompanying description,
Appellants assert that the method of Memarzadeh does not
display line segments such that the ends of adjacent line
segments overlap.

On page 4 of the answer, the Examiner asserts that
Memarzadeh teaches that the line segments overlap. The
Examiner points to figure 3A, column 8, row 4 to depict
overlap. Further, on pages 10 and 11 of the answer, the
Examiner also provides a marked up copy of Memarzadeh's figure
3C, in which the Examiner points to locations in the figure
where the line segments overlap by one pixel.

We find that the scope of claim 2 includes displaying
line segments representing the path of the stylus. Further,
we interpret the limitation "displaying each of the line
segments on the display such that the ends of adjacent line

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segments overlap," to mean that the ends of each adjacent line segment represent the path of the stylus overlap.

Having determined the scope of claim 2, we next turn to the rejection of claim 2 under 35 U.S.C. § 102 as being unpatentable over Memarzadeh. We find that the Examiner has failed to show that each of the limitations of claim 2 is anticipated by the prior art. As stated above, we find that Memarzadeh fails to teach drawing line segments and overlapping the ends of each adjacent line segment as claimed. We acknowledge that the sections of Memarzadeh addressed by the Examiner can be construed as showing overlap of line segments. However, we find that the scope of the claim is such that all adjacent line segments overlap, and as Appellants point out on page 6 of the brief there are also examples where the line segments do not overlap. Thus, we will not sustain the rejection of claim 2 under 35 U.S.C. § 102. Claims 4 through 17 depend upon claim 2, and, accordingly, the rejection of these claims will not be sustained because the additionally cited art does not cure the noted deficiencies in the teachings of Memarzadeh.

In view of the foregoing, we reverse the rejection of claims 1, 2 and 18 under 35 U.S.C. § 102. We also reverse the rejection of claims 4 through 17 under 35 U.S.C. § 103.

<div align="center">***REVERSED***</div>

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                    KENNETH W. HAIRSTON              )
                    Administrative Patent Judge      )
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                                                     ) BOARD OF PATENT
                    MICHAEL R. FLEMING               )
                    Administrative Patent Judge      )   APPEALS AND
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                    JOSEPH F. RUGGIERO               )
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